Applicants: Jose I. Suarez et al.
Appln. No.:   10/665,067   Examiner:
Filed: 09/17/2003   Group Art Unit: 2625
Title: System and Method for Efficiently Encoding an Image by Prioritizing Groups
                 Of Spatially Correlated Coefficients Based on an Activity Measure
Atty. Docket: CM03347JD01
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In the Claims:

1.   (Original) A method for encoding an input data signal comprising of the steps of:

performing a signal decomposition on the input digital signal to obtain a transformation of said input signal;

forming a plurality of subsets of the transformed data signal corresponding to a set of regions of the data set by grouping the transformed data; and

calculating a measure of activity corresponding to each of the plurality of subsets of the transformed data.

2.   (Original) The method according to claim 1, further comprising a step of:

selecting a set of regions based on the measure of activity.

3.   (Original) The method according to claim 2, further comprising a step of:

ordering the set of regions based on the magnitude of the measure of activity corresponding to each of the plurality of subsets of the transformed data.

4.   (Original) The method according to claim 3, further comprising a step of:

determining whether to extract a subset of the transformed data of spatially correlated regions on the basis of the measure of activity; and

extracting such subset from the transformed data.

5.   (Original) The method of claim 1, where the set of transformed data corresponds to the sub- banded output of a multi-level wavelet transformation.

6.   (Original) The method according to claim 5, further comprising a step of:

selecting a set of regions, corresponding to the lowest frequency sub-band, sub-band 0, based on the measure of activity.

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7. (Original) The method according to claim 6, further comprising a step of:

ordering the set of regions based on the magnitude of the measure of activity.

8. (Original) The method according to claim 5, further comprising the steps of:

selecting a set of regions based on the measure of activity for the three sub-bands spatially adjacent to the lowest frequency sub-band;

ordering the set of regions corresponding to each of the three sub-bands based on the magnitude of the measure of activity; and

using the measure of activity to determine whether to extract a subset of the transformed data in the regions corresponding to their spatially correlated higher frequency sub-bands.

9. (Original) The method according to claim 8, further comprising the step of:

ordering the set of regions corresponding to the spatially correlated higher frequency sub-bands based on the magnitude of the measure of activity.

10. (Original) The method according to claim 9, further comprising the step of:

selecting the set of regions based on either the channel bandwidth, or bit rate, or image quality, or image resolution.

11. (Original) A method of processing a set of transformed input data outputted by a wavelet filter bank decomposer comprising the steps of:

receiving a set of transformed data input;

computing a set of measures of variation corresponding to as set of selected areas of a transformed input data;

selecting a subset of the set of areas of the transformed input data on the basis of the set of measures of variation;

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determining an ordering for the subset of the set of areas on the basis of the set of measures of variation; and

grouping a set of subsets of the set of transformed input data on the basis of the set of measures of spatially correlated sub-bands.

12.   (Original) The method according to claim 11, further comprising the step of: transmitting the set of subsets of the set of transformed data coefficients.

13.   (Currently amended) The method according to claim 11, wherein the step of computing a set of measure of variation corresponding to a set of selected areas of transformed input data comprises the sub-steps of:

selecting a plurality of blocks of transformed input data corresponding to the set of all sub-bands; and

forming norm planes of a plurality of blocks of transformed input data on the basis of the set of measures of variation.

14.   (Original) The method according to claim 13, wherein each formed norm plane of the set of norm planes is further constructed from subsets of spatially correlated sub-bands.

15.   (Currently amended) The method according to claim 14, [where in] wherein the norm planes are sorted in order of importance based on the magnitude of the set of measures of variation.

16.   (Original) The method of claim 15, further comprising the step of selecting a number of sorted norm planes according to system channel bandwidth or rate.

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17.   (Currently amended) <u>The method</u> [A wireless system] according to claim 15, further comprising <u>the step of</u> [an encoder including encoding programming instructions for] transmitting all <u>of</u> the norm planes <u>based on encoded programming instructions</u>.

18.   (Currently amended) <u>The method</u> [A wireless system] according to claim 15, further comprising [an encoder including instructions for] <u>the step of</u> transmitting a subset of the norm planes [according to] <u>based upon</u> system channel bandwidth.

19.   (Currently amended) <u>The method</u> [A wireless receiving system] according to claim 15, further comprising [a decoder including instructions for] <u>the step of</u> decoding the received subset of the norm planes.